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Korea, Republic of

Planting Seeds

Annual

2008

Approved by:

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Report Highlights:

Korean demand for planting seeds continues to grow every year. In MY 2007/08 total imports increased to 20,367 mt, up 4.7 percent from the previous year. The United States still has problems exporting rye seeds due to phytosanitary problems. However, imports are up 6 percent to 6,461 mt.

Includes PSD Changes: No
Includes Trade Matrix: No
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Seoul [KS1]
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SECTION I. SITUATION AND OUTLOOK

Korea imports most of the planting seeds they require as local production remains negligible. Korea's domestic seed market is estimated at 520 billion Korea won (2005), which includes the plug industry. Strong international raw material prices for feed coupled with government support programs have encouraged the Korean livestock sector to cultivate their own forage crops. Breeding and seed supply of traditional crops such as rice, barley, wheat and soybeans are generally conducted by the government. However, private breeders play a major role in the breeding of vegetable seeds. Chinese cabbage, onions, melon, peppers, radish and watermelon are the most important seed-propagated vegetable species and breeding efforts are concentrated on those crops.

Korea: Domestic Planting Seeds Market (Billion Korean Won, 2005)								
Grains	Vegetable	Flower	Fruits	Special Crops	Forage/ Grass	Mushroom	Plug	Total
50	150	110	40	10	20	40	100	520

Source: Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF)

Note: 2005 Korean average exchange rate at 1,024 against US\$

Production

The Korean government seed production policy still targets five types of seed: rice, barley, soybean, corn and potato. In 2008, the Korea Seed & Variety Service (KSVS), formerly the National Seed Management Office (NSMO), distributed the following types and quantities of certified seeds: rice – 22,451 mt, barley 2,100 mt, soybean – 1,146 mt, corn – 68 mt, and potato – 8,322 mt.

In CY 2007, production of vegetable seeds from both local and overseas fields decreased by 35 percent and 16 percent, respectively, from the previous year to reduce the level ending stock that was higher than normal in CY 2006. Because of higher local production costs and the poor climate, a considerable amount of seed production is produced abroad and shipped to Korea. Private Korean seed companies produced 82 percent of their total seed output on foreign farms, slightly higher than the previous year. All seed from foreign production brought back by Korean producers are considered as imports (Please see Tables 11 and 12 for statistical information).

In addition, since 1998, the Korean government has encouraged farmers to cultivate forage for feed and fertilizer instead of rice to reduce rice production and encourage environmentally friendly rice farming. Farmers receive a 100 percent subsidy for the cost of the planting seeds under the government campaign. Planting seed imports of forages are expected to continue increasing to meet the greater demand generated by the government campaign while the import of grass seeds remains stable with the grass area staying at 42,000 hectares across the nation at present.

Trade

Korea is expected to continue to increase the import of forage seeds to meet a greater demand for the projected roughage production with the grass seeds imports decreasing in the future.

Korea: Projected Roughage Production Area (1,000 Hectare)									
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Grass	43	42	42	41	41	40	40	39	39
Rice Straw	945	935	925	915	905	895	885	875	865
Forage	112	131	141	151	161	171	181	191	201
Green Barley1/ Other	12	30	40	50	60	70	80	90	100
	100	101	101	101	101	101	101	101	101

Source: Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF)
/ for ensilage

Total imports of planting seeds increased in MY 2007/08 to 20,368 mt, up 4.7 percent from the previous year to meet a greater demand from forage and green manure sectors while grass seeds demand remained quite stable. Imports from the United States increased 8 percent from the previous year due mainly to the increased imports of oats, ryegrass, Sudan grass and other grass to meet greater demand from livestock sectors who have suffered from skyrocketed prices of imported hay and straw products as well as feed grains in recent years.

In MY 2007/08, rye seeds represent 42 percent of all seed imports. Canada is the major supplier. Imports of rye seed from the United States decreased by 14 percent down to 1,670 mt due to a lack of supply of rye seed. In contrast, imports of rye seeds from Canada increased by 100 percent to 6,936 mt.

However, in MY 2008/09, rye imports for green manure are likely to decline due to a budget distress for planting seed support program caused by highly increased seed prices and stiff devaluation of Korean currency against US\$. Contracted quantities of rye seed for green manure have declined to 4,584 mt, down 30 percent from the previous year (Table 6). Accordingly, planting area for green manure in CY 2008 will temporarily decline to 89,316 HA in this fall, down 21 percent from the previous year.

Even though government's "Green Manure Plan" expects the demand for rye seed to grow continuously in the near future, imports from the United States are forecast to decrease due to the lack of contracts with U.S. suppliers who have recently suffered rejection of shipment due to fungal contamination (*Bipolaris spicifera*). In CY 2008, 800 mt of U.S. rye seed shipped from the state of Oklahoma was rejected and shipped back to the United States. This shipment represented 40 percent of total rye seed contracts in 2008. Unless the United States can solve the phytosanitary issue, imports of rye seeds from the United States are forecast to continue to decline in the future.

Competition

The United States has been major exporter of forage and grass seeds competing with the following countries: Australia in oats, sorghum, other and Sudan grasses; Japan in vegetable seed; Canada in rye, oats; China in Chinese Milk Vetch and Hairy Vetch for green manure purposes. China also supplies herbaceous plants for flower, fruit tree seed, vegetable seed, lawn seed and flower seed. In the future, the planting seed market will be more competitive as other countries are beginning to develop their seed exports and they are focusing on Korea.

Intellectual Property Rights (Plant Variety Protection/Plant patents)

In December 1997, Korea introduced a system of plant variety protection (PVP), which conformed to the provisions of the 1991 Act of the International Union for the Protection of New Varieties of Plants (UPOV) Convention and became the 50th member of UPOV in 2002. The PVP in Korea is based on the Seed Industry Law of December 6, 1995, as revised on December 11, 2003. Korea Seed & Variety Service (KSVS) is responsible for the implementation of the PVP.

Since Korea joined the UPOV on January 7, 2002, the government has continued to add new species biennially to the IPR protection list. Korea added 34 new species in 2006 and 34 in 2008. They will finalize the extension of protection to all plant genera and species by 2009. Currently 223 genera and species are eligible for protection. Granted varieties of PVP have reached 2,474 out of 123 genera and species as of August 31, 2008. Table 14 and 15 shows the chronological approval of species eligible for protection in Korea.

Total application for PVP has reached to 3,741 varieties to date, composed of 2,060 varieties of ornamental plants (55.1%), 629 of food grains (16.8%), 676 of vegetables (18.1%), 177 of fruits (4.7%) and 199 of others (5.3%) included forage, special crops and mushrooms.

Seed Certification

Seed certification is classified into national certification and internal certification. The national certification program is administered by the government and covers only the crops within the national list (NL) composed of five major staple crops: paddy rice, barley, corn, soybeans and potato since 1998. Korea Seed & Variety Service (KSVS) administers the national certification.

The internal certification is given to NL seeds produced by a seed manager, who is qualified by a government agency based on a seed qualification test. The qualified seed manager can also produce a certified seed for crops other than those on the NL under the internal certification system.

Seeds that are not subject to seed certification can be distributed through seed markets with a label indicating the seed quality. The indication of seed quality should include the production year, the packing date, seed guarantee duration, variety denomination, quantity, the place of production, germination rate, import date, and importer's name.

Consequently, all seeds are traded in one of two ways; certified seeds under national or internal certification, or qualified seeds with a seed quality label. Korea is hesitant to become a signatory to the OECD Seed Schemes as they are not certain of the benefits.

Plant Health Regulations

A phytosanitary certificate is required for the importation of all planting seeds into Korea. Sixteen weeds listed in table 19 are currently designated as controlled pests. It is recommended that any potential U.S. exporter contact their local Animal and Plant Health Inspection Service (APHIS) office in their state before exporting new varieties to the Korean market for more details on the Korean regulations as they vary from variety to variety.

Variety Approval

There are three separate approval processes for the introduction of new varieties of planting seeds into Korea. The approval process depends on whether the seeds are included on the

national listed, registered through the plant variety protection program and notified for seed production and/or sale.

The major five field crops under the national list are required to pass the Value for Cultivation and Use (VCU) test and the Distinctiveness, Uniformity and Stability (DUS) test. Registration of plant variety protection (PVP) is required to pass the DUS, Novelty and Denomination tests. However, the relevant article of the Seed Industry Law was revised on February 3, 2008 and now private breeders are allowed to sell the five field crops without getting a through VCU test.

All seeds other than NL crops and PVP crops are required to submit to the Korea Seed & Variety Service (KSVS) the Notification for Seed Production and Sale that includes variety denomination along with other documents such as variety characteristics, breeding genealogy, color photograph and sample of variety.

DUS tests take one to three years depending on the variety in accordance with test guidelines (TG) of UPOV or national TG. The VCU test for major field crops must go through a test of productivity and field adaptation before being approved. Depending on the seed type, the trial test for productivity takes two to three years. This test includes a one-year field adaptation test, which is conducted on site in three or more provinces. Test fees are required.

The Korea Seed & Variety Service (KSVS) runs the variety and seed testing program. For further information on testing, contact

Dr. Keun-Jin Choi/Senior Researcher, Examiner of the KSVS at: Phone: (82-31) 204-8772, Fax: (82-31) 203-7431 or email: kjchoi@seed.go.kr.

A test fee is required.

An adaptability test is required for all new imported varieties before introduction into Korea. To apply for an adaptability test, contact the relevant organization below

Korea Fruit Tree Nursery Growers Association (for fruit trees),
Phone: 82-417-575-5337, Fax: 82-417- 574-3855;

Korea Florist Association (for flower),
Phone: 82-2- 577-2014, Fax: 82-2- 579-1861;

Korea Spawn Cultivation Association (for mushroom),
Phone: 82-31-234-5201, Fax: 82-31- 234-5202;

Korea Medicine Herbal Association (for oriental herb)
Phone 82-2-967-8133, Fax: 82-2-965-0643

National Agricultural Cooperative Federation (for forage and grass),
Phone: 82-2- 2127-7438, Fax: 82-2-2224-7830;

Korean Seed Association (for vegetable seed and others),
Phone: 82-2-578-7637/8, Fax: 82-2-578-7639.

Arbitration committee: An arbitration committee composed of three people from the MIFAFF rules on disputes on the infringement of PVPR between seed companies for a fee. However, the ruling of the arbitration committee is not binding.

Annual fees for PVP: Plant variety protection rights (PVPR) holders shall pay an annual fee to maintain the PVR rights. Fee amounts are shown on the table below based on a single class.

Years after registration	1 st to 5 th	6 th to 10 th	11 th to 15 th	16 th to 20 th	21 st to 25 th
Annual fees (Korean won)	30,000	75,000	225,000	500,000	1,000,000

Source: Korea Seed & Variety Service (KSVS)

Development of Biotechnology Crops

Korea has yet to commercially produce any biotech crops despite a substantial investment in the development of such crops. In 2008, the Korean government including the Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF), Ministry of Education, Science and Technology (MEST) have a plan to invest 99.3 billion won (approximately \$87.1 million dollars) in research and development of new agricultural biotech crops and food, which is a 5.7 percent increase compared to the previous year.

The development of biotechnology crops is being led by various government agencies. The National Institute of Agricultural Biotechnology under MIFAFF's Rural Development Administration is developing around 80 to 90 separate biotech traits among 18 to 20 crops and five traits in two animals. Herbicide tolerant rice, pepper, perilla seed, and virus resistant potatoes are expected to become the first domestically developed biotech crops to become commercially produced in Korea. No official statistics on the development of biotechnology crops by private entities are available. Based upon a recent survey of local scientific journals, a total of 380 papers pertinent to biotech crops (54 crops) were published in Korea between 1990 and 2007. Of the 380 papers, 99 papers were about tobacco, 45 about rice, and 29 about potatoes. Rough industry estimates indicate that approximately 60 varieties are currently under development although they are all still at the laboratory stage. Research is mainly focused on environmental stress resistance and disease resistance biotech crops, transformation technics, and gene expression. The recent trend shows that research on 2nd and 3rd generation traits have been increasing. (Please refer to [KS8039 Biotech Annual.doc](#) for general information on Biotechnology in Korea.)

SECTION II: STATISTICAL TABLES

**Table 1: Demand for Grass and Forage Seed
(Unit: Metric Ton, Calendar year)**

Calendar Year	Animal Feed			Green Manure	Total
	Grass	Forage	Total		
1999	145	5,363	5,508	367	5,875
2000	84	4,199	4,283	2,787	7,070
2001	79	3,667	3,746	4,404	8,150
2002	71	3,394	3,465	5,124	8,589
2003	67	3,228	3,295	5,732	9,027
2004	91	3,473	3,564	5,705	9,269
2005	83	3,346	3,429	8,929	12,358
2006	46	3,352	3,398	9,580	12,978
2007	48	3,439	3,487	10,111	13,598
2008	55	5,241	5,313	7,980	13,293

Source: National Agricultural Cooperative Federation (NACF)
Korea Dairy and Beef Farmers Association (KDBFA)

**Table 2: Production of Government Certified Planting Seed
(Unit: Metric Ton, Calendar year)**

Commodity	2002	2003	2004	2005	2006	2007	2008 ^{a/}
Rice	15,160	16,000	17,000	18,000	21,002	24,530	25,455
Barley	2,120	1,974	1,918	1,700	1,600	1,652	2,200
Soybean	857	965	1,050	1,200	1,250	1,147	1,120
Corn	114	105	99	80	34	45	53
Potato	9,459	7,889	8,498	9,444	9,201	8,757	7,909
Total	27,710	26,933	28,565	30,424	33,087	36,131	36,737

Source: Korea Seed & Variety Service (KSVS)
a/ Plan

**Table 3 - Korea: Distribution of Government Certified Planting Seed
(Unit: Metric Ton, Calendar year)**

Commodity	2002	2003	2004	2005	2006	2007	2008
Rice	10,782	13,464	14,025	12,627	16,753	19,674	22,451
Barley	1,967	1,903	1,851	1,660	1,533	1,625	2,100 ^{a/}
Soybean	790	814	946	1,058	1,197	1,160	1,146
Corn ^{1/}	84	105	96	77	57	39	68
Potato	9,224	9,010	7,473	8,264	8,692	7,690	8,322
Total	22,847	25,296	24,391	23,686	28,232	30,188	34,087
1/Corn seed has been distributed as below							
Forage	52	72	62	46	35	35	47
Food	32	33	34	31	22	4	21
Total	84	105	96	77	57	39	68

Source: Korea Seed & Variety Service (KSVS)

a/ Plan

**Table 4: CY2008 Supply of Forage and Grass Seed for Animal Feed
(Unit: Kg)**

Commodity	Spring Planting	Fall Planting	Total
Orchard Grass	9,260	23,060	32,320
Tall Fescue	3,940	4,840	8,780
Timothy	580	2,140	2,720
Kentucky Bluegrass	1,620	1,280	2,900
Perennial Rye Grass	0	4,000	4,000
Reed Canary Grass	840	0	840
Alfalfa	1,080	620	1,700
White Clover	440	340	780
Red Clover	120	600	720
Grass Seed Total	17,880	36,880	54,760
Forage Rape	2,690	4,430	7,120
Forage Oat	233,040	467,760	700,800
Winter Rye	0	3,531,060	3,531,060
Italian Ryegrass	12,000	402,000	414,000
Sudan Grass F1	408,300	0	408,300
Sorghum F1	11,340	0	11,340
Corn	168,320	0	168,320
Forage Seed Total	835,690	4,405,250	5,240,940
Total Imported Seed	853,570	4,442,130	5,295,700
Domestic Corn	16,924	0	16,924
Grand Total	870,494	4,442,130	5,312,624

Source: National Agricultural Cooperative Federation (NACF)
Korea Dairy and Beef Farmers Association (KDBFA)

**Table 5: CY2007 Supply of Forage and Grass Seed for Animal Feed
(Unit: Kg)**

Commodity	Spring Planting	Fall Planting	Total
Orchard Grass	21,640	8,020	29,660
Tall Fescue	2,680	4,560	7,240
Timothy	540	2,060	2,600
Kentucky Bluegrass	880	2,100	2,980
Perennial Rye Grass	0	0	0
Reed Canary Grass	820	280	1,100
Alfalfa	800	1,100	1,900
White Clover	0	1,280	1,280
Red Clover	240	200	440
Grass Seed Total	27,600	19,600	47,200
Forage Rape	1,920	4,030	5,950
Forage Oat	235,700	350,620	586,320
Winter Rye	0	1,887,380	1,887,380
Italian Ryegrass	4,900	335,320	340,220
Sudan Grass F1	344,460	0	344,460
Sorghum F1	8,900	0	8,900
Corn	249,960	0	249,960
Forage Seed Total	845,840	2,577,350	3,423,190
Total Imported Seed	873,440	2,596,950	3,470,390
Domestic Corn	15,386	0	15,386
Grand Total	888,826	2,596,950	3,485,776

Source: National Agricultural Cooperative Federation (NACF)
Korea Dairy and Beef Farmers Association (KDBFA)

**Table 6: Rye Contracts for Green Manure
(Unit: Metric Ton)**

Variety	2002	2003	2004	2005	2006	2007	2008 ^{a/}
Koolgrazer	0	714	0	794	0	0	0
G187 Ryegrazer	400	0	0	0	0	0	0
Wintergrazer 70	1,656	500	1,495	0	0	0	0
Elbon	0	0	0	80	532	0	3,594
Maton	0	700	210	933	400	350	500
Wintermore	0	0	0	0	0	0	0
Danko	0	0	0	540	772	100	0
Homil22	1,888	0	0	0	0	100	0
Wintergreen	0	2,482	2,456	3,305	2,516	1,300	0
Prima	0	0	0	0	1,560	4,787	490
Total	3,944	4,396	4,161	5,652	5,780	6,637	4,584

Source: National Agricultural Cooperative Federation (NACF)
a/ to be delivered.

Table 7: Korean Imports of Planting Seeds
Unit: KG, July/June Marketing Year

Commodity	Total World Imports		Imports from the U.S.		
	2006/07	2007/08	2006/07	2007/08	Market Share 1/ (%)
Corn	160,883	186,877	160,880	114,438	61
Rye	7,519,380	8,650,360	1,940,000	1,669,980	19
Oats	594,480	583,626	82,700	219,398	38
Sorghum	9,900	11,350	4,440	6,560	58
Lucerne seeds	16,600	19,956	10,116	6,365	38
Clover seed	300,687	101,010	24,747	9,765	10
Fescue seed	626,420	536,523	605,529	536,483	100
Kentucky bluegrass	423,025	337,236	421,900	337,236	100
Ryegrass	965,952	1,224,329	873,221	1,177,469	96
Timothy grass	5,549	0	3,009	0	0
Sudangrass	858,858	1,147,922	567,687	852,937	74
Orchardgrass	121,767	74,861	90,934	57,581	77
Othergrass	4,110,420	3,624,560	39,703	111,165	3
Lawn seed	932,149	937,224	756,225	911,676	97
Sub. Total	16,646,070	17,432,834	5,581,154	6,011,053	34
Vegetable seeds	2,277,612	2,163,295	318,507	331,957	15
Herbaceous plants	270,693	270,852	25,893	38,908	14
Seeds of other forest tree	21,709	43,282	5,528	3,044	7
Seed of fruit tree	157,480	176,502	11	91	0
Seeds of oak	277	100	277	100	100
Other	287,323	289,953	77,480	75,990	26
Sub. Total	3,015,094	2,943,984	427,696	450,090	15
Total	19,661,164	20,367,818	6,008,850	6,461,143	32

Source: Korea Customs Service
1/ in MY 2007/08

Table 8: Korean Imports of Planting Seeds
Unit: 1,000US\$, July/June Marketing Year

Commodity	Total World Imports		Imports from the U.S.		
	2006/07	2007/08	2006/07	2007/08	Market Share 1/ (%)
Corn	1,240	1,590	1,240	1,024	64
Rye	5,156	6,007	1,309	1,198	20
Oats	362	551	64	312	57
Sorghum	36	52	18	31	60
Lucerne seeds	63	74	29	27	36
Clover seed	1,087	463	82	36	8
Fescue seed	1,450	1,348	1,390	1,348	100
Kentucky bluegrass	1,844	1,564	1,842	1,564	100
Ryegrass	1,846	2,505	1,651	2,388	95
Timothy grass	13	0	6	0	0
Sudangrass	1,451	2,042	982	1,731	85
Orchardgrass	343	324	237	234	72
Othergrass	5,706	5,373	288	256	5
Lawn seed	2,788	2,958	2,181	2,763	93
Sub. Total	23,385	24,851	11,319	12,912	52
Vegetable seeds	42,415	43,946	2,999	2,883	7
Herbaceous plants	4,257	4,595	1,925	1,696	37
Seeds of other forest tree	343	448	211	126	28
Seed of fruit tree	166	184	2	19	10
Seeds of oak	3	1	3	1	100
Other	1,750	1,347	727	403	30
Sub. Total	48,934	50,521	5,867	5,128	10
Total	72,919	75,372	17,186	18,040	24

Source: Korea Customs Service
1/ In MY 2007/08

Table 9: Korean Exports of Planting Seeds
Unit: KG, July/June Marketing Year

Commodity	Exports to Total World		Exports to the U.S.		
	2006/07	2007/08	2006/07	2007/08	Market Share 1/ (%)
Fescue seed	0	1	0	1	100
Other grass	0	103	0	0	0
Herbaceous plants	1,160	1,994	74	0	0
Vegetable seed	418,624	435,856	13,262	15,435	4
Seed of fruit tree	166	30,086	0	0	0
Seed of other forest tree	2,933	620	183	120	19
Lawn seed	0	2,001	0	0	0
Other	61,626	24,777	35	312	1
Total	484,509	495,438	13,554	15,868	3

Source: Korea Customs Service
 1/ in MY 2007/08

Table 10: Korean Exports of Planting Seeds
Unit: 1,000 US\$, July/June Marketing Year

Commodity	Exports to Total World		Exports to the U.S.		
	2006/07	2007/08	2006/07	2007/08	Market Share 1/ (%)
Fescue seed	0	2	0	2	100
Other grass	0	8	0	0	0
Herbaceous plants	32	42	7	0	0
Vegetable seed	18,201	21,944	3,009	2,986	4
Seed of fruit tree	2	16	0	0	0
Seed of other forest tree	81	40	21	14	19
Lawn seed	0	50	0	0	0
Other	592	631	3	52	1
Total	18,908	22,733	3,040	3,054	3

Source: Korea Customs Service
 1/ in MY 2007/08

**Table 11: Vegetable Seed Production
(Kg, Calendar Year)**

Commodity	CY 2006			CY 2007		
	Total	Local Production	Overseas Production ^{1/}	Total	Local Production	Overseas Production ^{1/}
White Radish	1,146,942	297,655	849,287	1,032,990	203,064	829,926
Chinese Cabbage	277,422	151,580	125,842	188,920	93,806	95,114
Cabbage	58,199	4,212	53,987	65,720	10,629	55,091
Onion	34,210	6,855	27,355	46,176	9,197	36,979
Welsh Onion	68,377	3,000	65,377	42,016	3,572	38,444
Carrot	45,957	4,958	40,999	37,857	325	37,532
Lettuce	38,660	840	37,820	54,972	2,499	52,473
Spinach	506,332	29,728	476,604	230,972	3,680	227,292
Red Pepper	70,318	6,244	64,074	44,318	998	43,320
Tomato	1,108	56	1,052	1,482	30	1,452
Melon	1,741	537	1,204	693	365	328
Cucumber	10,823	1,164	9,659	15,672	551	15,121
Water Melon	15,191	481	14,710	12,114	407	11,707
Squash	66,915	1,430	65,485	100,835	162	100,673
Total	2,342,195	508,740	1,833,455	1,874,737	329,285	1,545,452

Source: Korean Seed Association

1/ Korea Seed Association include overseas production in total vegetable seed production in Korea because local seed companies have cultivated the seed abroad and then imported it into Korea.

**Table 12 - Korea: Vegetable Seed Imports
(Kg, Calendar Year)**

Commodity	CY 2006			CY 2007		
	Total Imports	Pure Imports	Overseas Production ^{1/}	Total Imports	Pure Imports	Overseas Production ^{1/}
White Radish	1,062,466	208,630	853,836	1,075,797	245,872	829,925
Chinese Cabbage	125,870	27	125,843	95,142	29	95,113
Cabbage	60,012	947	59,065	55,327	236	55,091
Onion	33,212	5461	27,751	41,655	4,676	36,979
Welsh Onion	73,913	8,529	65,384	47,768	9,324	38,444
Carrot	48,973	3,080	45,893	44,154	6,623	37,531
Lettuce	40,843	3,022	37,821	53,294	822	52,472
Spinach	578,402	101,745	476,657	247,784	20,492	227,292
Red Pepper	70,822	30	70,792	43,376	56	43,320
Tomato	2,029	138	1,891	1,601	149	1,452
Melon	1,219	0	1,219	328	0	328
Cucumber	11,944	0	11,944	15,121	0	15,121
Water Melon	14,910	2	14,908	11,723	17	11,706
Squash	72,870	6,131	66,739	106,782	6,109	100,673
Total	2,197,485	337,742	1,859,743	1,839,852	294,405	1,545,447

Source: Korean Seed Association

1/ Imports that Korean seed companies cultivated abroad

**Table 13 - Korea: Vegetable Seed Export
(Kg, Calendar Year)**

Commodity	CY 2006	CY 2007
White Radish	184,237	151,117
Chinese Cabbage	29,780	32,744
Cabbage	31,665	25,488
Onion	2,642	1,135
Welsh Onion	3,457	8,302
Carrot	19,568	16,344
Lettuce	945	1,679
Spinach	9,299	3,148
Red Pepper	24,927	25,270
Tomato	607	870
Melon	152	399
Cucumber	2,678	6,709
Water Melon	889	4,244
Squash	1,787	5,747
Other 1/	9,531	31,122
Total	322,254	314,316

Source: Korean Seed Association
1/ Broccoli etc.

**Table 14: CY 2006 List of National Recommended Cultivars of Grass and Forage
(As of March 10, 2008)**

Grasses	
Orchard grass	Potomac, Frode, Frontier, Ambassador, Hallmark, Summer Green, Amba, Warrior, 93E, Bacchus .
Tall Fescue	Fawn, Alta, Festorina, Felopa, AU-Triumph, Cajun, Montebello, Barcarella, Festival .
Timothy	Climax, Clair, OdenWalder, Hokuo, Kunpu, Liphlea, Richmond .
Perennialryegrass	Norlea, Taptoe, Reveille, Bastion, Ellett, Bison, Tetreelite, Friend, Linn .
Kentucky Bluegrass	Kenblue, Monopoly
Red Top	Streaker
Reed Canary Grass	Frontier, Venture, Vantage.
Meadow Fescue	Joma
Bromgrass	Regar
Legumes	
Alfalfa	Pacer, Scout, Team, Luna, Vernal, 5444, Drummor, Kitawakaba
White Clover	California Ladino, Regal.
Red Clover	Kenland, Titus, Atlas, TR2000.
Birdsfoottrefoil	Empire, Viking.
Forage Crops	
Corn	P3394, P3156, P3163, P3223, P3310, P3130, P36H36, P32P75, P33F18, P33J56, 32K26, 31A12, 32R42, 32K61, 31G20, DK689, DK729, DK713, DK501, DK720S, DK537, DK754S, DK697, DKC61-24, DK705, G4743, G4655, NC5514, NC7117, NC4880, NC6440, NC738, GW6959, GW737, GW5018, GW6300, GW785, Garst8342, Garst8396IT, Garst8285, Garst New 8640, N73-Q3, EXP874, PP3303, 34H31, 33D31, 31N27, NC627, 33P66, 33V15, 33H05, 32W86, 31G66, GX6545, GX5006, 33N09, 33A84, 33H25, 32B33, 32B81, 31P41 .
Sorghum-Sudan grass Hybrid	P855F, P877F, Jumbo, TE-Haygrazer, Sordan 79, GW9110G, GW104G, GW9161F, SX-17, Speed Feed, G-7, Turbo 9, Turbo10, TE-Evergreen, Betta Grazer, AG2501, Dairyman's Dream, PAC F 8350, Cow Pow, LF1, Maxigraze, Sweet Home, Revolution, SS301BMR, Turbo gold .
Sorghum-Sorghum Hybrid	SS405, KF429, Mega Sweet.
Rye	Koolgrazer, Elbon, Vita-graze, Bonel, Athens-Abruzzi, Maton, Wrens abruzzo, Wintermore, Danko, Wintergrazer 70, Luchs, Olkon, Bates, Humbolt, MAC Blue, Barr Grazer, Barr Grain Master, GI85Ryegrazer, GI87Ryegrazer, Lovaszdatonai, Wintergreen, Jlee Select, 9909 Green Power, Spooner, Wheeler, Prima, Musketeer.
Oats	Cayuse, Magum, Foothill, West (Speed Oat), Murray, Swan, Ensiler, Yilgarn, Palinup, Cashel, Irwin, Dane, Troy, A.C. Juniper, Hayabusa, Enterprise, Nugene, Sesqui, Wabasha, AGL4101.
Forage Rape	Akela, Velox, Ramon, Sparta, Barnapoli, Ember, Petranova .
Italian rye grass	Dalita, Tetrone, Barmultra, Tetraflorum, Gordo, Sikem, Bartissimo,

	Wilo, Combita, Tosca, Florida 80, Tachiwase, Marshall, Grazer, TAM90, Typhoon, Ribeye, Jivet, Tachimusha, Passerel plus.
Hairy Vetch	Capello, Sander, Welta, Oregon common.

Source: National Agricultural Cooperative Federation (NACF)

Note: Entries in boldface are new as of March 2008.

Table 15: Genera and Species Eligible for Protection

Effective Date	Genera and Species
December 31, 1997 (27 Genera/Species)	Paddy rice, Wheat, Barely, Soybean, Corn, Potato, Radish, Chinese cabbage, Cabbage, Water melon, Squash, Hot pepper, Tomato, Cucumber, Melon, Welsh onion, Onion, Carrot, Spinach, Lettuce, Apple, Pear, Peach, Plain cactus, Rye grass, Tall fescue, Red clover
May, 1, 2000 (30 Genera/Species)	Oat, Sweet Potato, Melon, Broccoli, Cauliflower, Grapevine, Yuzu (citrus), Lisianthus, Petunia, Godetia, Impatiens, Hyacinth, Cyclamen, Forsythia, Hibiscus, Alstroemeria, Snapdragon, Pansy, Daisy, Lisianthus, Ajuga Multiflora, Sesame, Perilla, Groundnut, Rape, Angelica Gigas, Astragalus Membranaceus, Pleurotus (Mushroom), Orchard Grass, Ginseng
July 1, 2001 (31 Genera/Species)	Dendrobium, Aerides japonicum, Neofinetia falcata, Calanthe discolor, Rose, Lily, Chrysanthemum, Iris, Gladiolus, Tulip, Poinsettia, Celosia, Stock, Zinnia, Myosotis alpestris, Senecio cruentus, Nasturtium, Pot marigold, Lobularia maritima, Ageratum, Hemerocallis, Rehmannia glutinosa, Lycium, Dioscorea, Bupleurum Falcatum, Platycodon grandiflorum, Cassia, Cnidium, Liriope Platyphylla, Angelica dahurica, Saposhnikovia
July 1, 2002 (25 Genera/Species)	Rye, Adzuki bean, Mungbean, pea, Egg plant, Gourd, Pakchoi, Sterelitzia, Cattleya, Oncidium, Hosta, Campanula, Pelargonium, Paeonia Suffruticosa, Kalanchoe, Chamecereus, Ganoderma, Angelica koreana, Pleuropterus, Alisma, Scutellaria, Paeonia lactiflora, Carthamus, Codonopsis, kiwi fruit
December 1, 2004 (42 Genera/Species)	Kidney bean, Job's tears, Mustard, Turnip rape, Kohlrabi, Edible chrysanthemum, Dahlia, Allium, Imperial fritillary, Gloxinia, Common calla, Blue grape hyacinth, Ornithogalum, Anthurium, Crocus, Amaryllis, Royal azalea, Common camellia, Hydrangea, Carnation, Gerbera, Gypsophila, Kaffir lily, Sea lavender, Begonia, Bachelor's button, Moth-orchid, Aquilegia, Campanula punctata lamarck, Campanula takesimana Nakai, Rough gentian, Gentiana, Aster, Spring orchid, Winter orchid, Chinese pink, Freesia, Schizandra, Angelica acutiloba, Atractylis, Cnidium, Phellinus
December 1, 2006 (34 Genera/Species)	Buck wheat, Strawberry, Chinese leek, Kale, Swiss chard, Whorlde mallow, Chicory, Endive, Aralia continentalis root, Tangshen, Coco grass, Common anemarrhena, Cape-jasmine, Alfalfa, Plumed thistle, Rocket larkspur, Drumond phlox, Ficus, Corn plant, Dracaena, Philodendron, Tillandsia, Cymbidium, Poppy anemone, Clematis, Common lantana, Cattail gayfeather, Desert rose, Trailing maidenhair, Osmunda, Peperomia
March 1, 2008 (34 Genera/Species)	Foxtail millet, Chinese millet, African millet, Celery, Parsley, Brassica rapa, Persimmon, Plum, Apricot, Mume, Mushroom, Licorice, Eucommia ulmoides, Japanese cornel dogwood, Gastrodia elata, Golden mushroom, Mugwort, Hedyotis diffusa, Euphorbia hypericifolia, Alocasia, Exacum, Aster koraiensis, Gaura lindheimeri, Coreopsis, Mukdenia rossii, Sedum kamtschaticum, Carex okamotoi, Black mushroom, Chestnut, Sawleaf zelkova, Cherry tree, Japanese maple, Jujube, Tobacco

Source: Korea Seed & Variety Service (KSVS)

**Table 16: Application and Registration Status of Plant Variety Protection
(As of August 31, 2008)**

Item	Genera and Species	Application	Rejection	Registration
Total	123	3,741	348	2,474
Food Grains	14	629	35	509
Vegetables	25	676	72	343
Fruits	7	177	13	108
Flowers	49	2,060	216	1,359
Forage	4	19	2	10
Special Crops	16	138	7	115
Mushrooms	8	42	3	30

Source: Korea Seed & Variety Service (KSVS)

**Table 17: Application and Registration Status of Plant Variety Protection
On Annual Basis**

	By 2003 ^{a/}			2004		
Item	Application	Rejection	Registration	Application	Rejection	Registration
Total	1686	40	641	262	78	477
Food Grains	367	5	294	34	1	47
Vegetables	233	13	74	83	13	32
Fruits	93	4	47	9	2	5
Flowers	881	17	161	122	56	361
Forage	8	0	4	1	0	2
Special Crops	97	0	58	8	6	28
Mushrooms	7	1	3	5	0	2
	2005			2006		
Item	Application	Rejection	Registration	Application	Rejection	Registration
Total	533	75	311	421	42	273
Food Grains	48	3	27	59	5	28
Vegetables	79	12	45	97	7	61
Fruits	18	1	14	28	3	20
Flowers	369	56	214	218	26	152
Forage	2	1	0	4	0	0
Special Crops	13	1	7	7	0	7
Mushrooms	4	1	4	8	1	5
	2007			2008 ^{b/}		
Item	Application	Rejection	Registration	Application	Rejection	Registration
Total	527	23	424	312	90	348
Food Grains	57	0	60	64	21	53
Vegetables	117	5	72	67	22	59
Fruits	19	0	12	10	3	10
Flowers	310	17	263	160	44	208
Forage	3	1	4	1	0	0
Special Crops	7	0	8	6	0	7
Mushrooms	14	0	5	4	0	11

Source: Korea Seed & Variety Service (KSVS)

a/ cumulative

b/ as of August 2008.

**Table 18: The Status of National Variety List
As of May 31, 2008**

Items	Application	Registration ^{1/}
Rice	159	211(78)
Barley	46	81(40)
Soybean	79	104(42)
Corn	71	55(9)
Potato	45	41(7)
Total	400	492(176)

Source: Korea Seed & Variety Service (KSVS)

1/ included variety numbers in parentheses that were registered into national recommendation list under old regulations.

Table 19: Controlled Weeds List

	Scientific Name	Common Name
1	<i>Amsinckia intermedia</i>	Coast fiddleneck
2	<i>Cenchrus longispinus</i> (Hack.) Fern.	Longspine sandbur
3	<i>Centaurea repens</i> L.	Russian Knapweed
4	<i>Cirsium arvense</i> (L.) Scop.	Canada thistle
5	<i>Cirsium vulgare</i>	Spear thistle
6	<i>Conium maculatum</i>	Hemlock
7	<i>Cuscuta</i> spp.	Dodder
8	<i>Geranium dissectum</i>	Cut-leaved cranesbill
9	<i>Myosotis arvensis</i>	Field forget-me not
10	<i>Picris echioides</i>	Bristly ox-tongue
11	<i>Xanthium spinosum</i> L.	Prickly burweed
12	<i>Solanum elaeagnifolium</i>	White horsenettle
13	<i>Striga</i> spp.	Witchweed
14	<i>Emex australis</i>	spiny emex
15	<i>Salvinia molesta</i>	giant salvinia
16	<i>Alternanthera phloxeroides</i>	Alligator weed

Source: National Plant Quarantine Service

**Table 20: Applied Tariff Schedule for Planting Seeds
(Percent)**

Commodity	H.S. Code	2007			2008		
		General rate	In-Quota rate	Out-of-quota rate	General rate	In-Quota rate	Out-of-quota rate
Peas	0713.10.1000	27	na	na	27	na	na
Beans	0713.31.1000	30	30	607.5	30	30	607.5
Red Beans	0713.32.1000	30	30	420.8	30	30	420.8
Kidney Beans	0713.33.1000	27	na	na	27	na	na
Wheat	1001.90.9010	1.8	na	na	1.8	na	na
Rye ^{1/}	1002.00.1000	3(0)	3	108.7	3(0)	3	108.7
Oats ^{1/}	1004.00.1000	3(0)	3	554.8	3(0)	3	554.8
Forage Corn ^{2/}	1005.10.0000	0	0	328	0	0	328
Sweet Corn ^{2/}	0712.90.2091	0	0	370	0	0	370
Sorghum ^{1/}	1007.00.0000	3(0)	3	779.4	3(0)	3	779.4
Millet ^{1/}	1008.20.1010	3(0)	3	18	3(0)	3	18
All Seeds	1209.xx.xxxx	0	na	na	0	na	na

Source: Korea Customs Research Institute, Tariff Schedules of Korea

1/ Number in parentheses is a temporary duty. Commodity imported under the reduced tariff policy. CMA annual quota through 2004 for the respective commodity is as follows: Rye - 1,327.3 mt, Oats - 597.3 mt, Sorghum - 13.7 mt, Millet - 0.4 MT and Beans - 16,750 mt under unifying HS 0713.31.1000, 0713.31.9000, 0713.32.1000, and 0713.32.9000.

2/ Corn seed for forage and sweet corn is imported at free tariff rate for 247 MT of CMA quota.